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JANET NAPOLITANO, GOVERNOR
SUSAN GERARD, DIRECTOR

November 15, 2005

Dear Friends of Arizona's Children:

Every death of a child in Arizona is a profound loss to parents, family and the community. The child fatality review process is an opportunity to learn about the causes and circumstances of child death in order to prevent deaths in the future. We both were involved in the initial legislation that established the Arizona State Child Fatality Review Team in our respective roles as member of the State House of Representatives and President of the Arizona Chapter of the American Academy of Pediatrics respectively. One of the key players in the creation of the child fatality team was the late Bev Ogden, who was Deputy Director of the Governor's Office of Children in 1993. This year's report is dedicated to Bev who died earlier this year.

Through the efforts of a dedicated team of volunteers who donated over 4,000 hours, 98% of child deaths that occurred in 2004 were reviewed. This report provides data on not only the causes, but also the preventability of child deaths in our state.

Over time, we have seen the rates of child fatalities dropping in many categories of death; however, the number of preventable deaths remains high. Child fatality teams concluded that 309 (30%) of the deaths were preventable. This report provides information on factors that contributed to the preventable deaths and recommendations to address these factors.

A disturbing trend in this latest report shows the increasing impact of methamphetamines on our community. Of 102 child deaths involving drugs or alcohol, 21 involved use of methamphetamines. What's more, methamphetamine use was identified as a preventable factor in one out of every five maltreatment deaths.

We hope that you will find this report informative and useful. Furthermore, we hope that it will encourage you to get involved in efforts to prevent the untimely deaths of Arizona's children.

Sincerely,

A handwritten signature in cursive script that reads "Susan Gerard".

Susan Gerard
Director

A handwritten signature in cursive script that reads "Mary E. Rimsza M.D.".

Mary E. Rimsza, M.D.
Arizona Child Fatality Review Team Chair

SG:MM:tg



TWELFTH ANNUAL REPORT NOVEMBER 2005

Arizona Department of Health Services
Public Health Prevention Services
Office of Women's and Children's Health



Leadership for a Healthy Arizona

Janet Napolitano, Governor
State of Arizona

Susan Gerard, Director
Arizona Department of Health Services

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ARIZONA CHILD FATALITY REVIEW TEAM

TWELFTH ANNUAL REPORT

NOVEMBER 2005

MISSION

To reduce preventable child fatalities through systematic, multidisciplinary, multiagency, and multimodality review of child fatalities in Arizona; through interdisciplinary training and community-based prevention education; and through data-driven recommendations for legislation and public policy.

Submitted to

The Honorable Janet Napolitano, Governor, State of Arizona
The Honorable Ken Bennett, President, Arizona State Senate
The Honorable James P. Weiers, Speaker
Arizona State House of Representatives

Dedication

In 2005 Arizona lost a valuable advocate for Arizona's children. Bev Ogden devoted over 30 years to the betterment of the lives of children. Her commitment to the welfare of children was unparalleled. Bev was a strong force behind numerous child welfare initiatives throughout her career, including the Arizona's Child Fatality Review Program. The Child Fatality Review Team is honored to dedicate this year's annual report to Bev Ogden.

Acknowledgements

We wish to acknowledge the dedication and tireless support of more than 250 volunteers from throughout Arizona who contributed over 4,000 hours of their time to review childhood deaths. Due to the extraordinary efforts of these volunteers, Child Fatality Review Teams reviewed more than 98 percent of all of the deaths that occurred in Arizona during 2004, a higher percent than had ever been reviewed previously. Members of the local and state teams continue to share their valuable time and expertise to make the child fatality review program a success.

We would like to extend a special thank you to Sandra Smith who resigned her position as the coordinator of the Maricopa County Child Fatality Review Team at the end of June 2005. Ms. Smith has been involved with the program since its inception. In addition to her duties as coordinator, Ms. Smith also served as co-chair of the Local Team Coordinator Committee. Ms. Smith's dedication and commitment made her invaluable to the Arizona Child Fatality Program and she will be greatly missed.

We would also like to extend a special thank you to Leslie DeSantis, who in addition to coordinating the Mohave County Team, has enthusiastically assumed the coordinator responsibilities for the La Paz and Yuma County Child Fatality Review Teams. Ms. DeSantis' contributions began at the onset of the Arizona's Child Fatality Review Program. Today, she continues to enhance the program with her exemplary coordination skills. We are very grateful to Ms. DeSantis for all her hard work and dedication to the program.

Executive Summary

There were 1,048 child deaths reported in Arizona during 2004 and 1,031 (98 percent) of these deaths have been reviewed for this report. The mission of the Arizona Child Fatality Review Program is to reduce child deaths by identifying preventable deaths through case reviews. Using this data, the program develops recommendations for legislation, public policy and community education to help prevent deaths in the future.

The data review form used by local child fatality review teams was revised for the 2004 data collection year to include a 32-item checklist of preventable factors. The Child Fatality Program created the checklist to assist local teams in determining whether or not a death was preventable and to identify the most common factors present in childhood deaths. Thirty-five percent of all reviewed deaths (n=358) had at least one preventable factor noted and 309 of the deaths reviewed (30 percent) were determined by the local teams to be preventable. A child's death is considered to be preventable if an individual or the community could reasonably have done something that would have changed the circumstances that led to the child's death.

The number of deaths that were determined to be preventable increased with the child's age, ranging from only three percent of neonatal deaths (deaths to newborns under the age of 28 days) to 76 percent of deaths occurring in the 15 through 17 years age group. The five most frequently identified preventable risk factors were drug or alcohol use, lack of supervision, vehicle restraints, and driver inexperience.

Drug or alcohol use was identified as a preventable factor in 102 (10 percent) of all child deaths reviewed in 2004. Twenty-one of these 102 deaths involved use of methamphetamines. The majority of homicide and maltreatment deaths involved drugs or alcohol and one fourth of the suicide and motor vehicle crash deaths also involved drugs or alcohol. Methamphetamine was identified as a preventable factor in one out of every five maltreatment deaths.

For neonates, contributing factors included co-sleeping, infant sleep position, lack of prenatal care, and drug or alcohol use. Among infants 28 days to one year, sleep position was the most frequently identified preventable factor followed by drug and alcohol use and unsafe bedding.

Among one through four year olds, 45 of the 104 deaths were determined to be preventable. The preventable factor most frequently noted was lack of supervision followed by lack of pool barriers and allowing a child to be alone in or near water. Thirty-three of these children died in accidents, 17 of which were drowning and 13 of which were motor vehicle accidents. Nine children in this age group were murdered.

The most frequently identified preventable factor for children five through nine years old

also was lack of supervision followed by drug and alcohol use.

The majority of the deaths (57 percent) that occurred in the 10 through 14 years age group were preventable. Lack of use of appropriate vehicle restraints was the number one risk factor identified for these children. Drug and alcohol use, driver inexperience, access to firearms, driving at a high speed, and lack of supervision were also identified as preventable factors in many of these deaths.

Of the 156 deaths in the 15 through 17 years age group, 76 percent were determined to be preventable. There were multiple preventable factors identified for many of the adolescents. The most common preventable factor was drug or alcohol use, which was associated with 28 percent of these deaths. Other factors included driver inexperience (28 percent of deaths), driving at high speeds and lack of appropriate vehicle restraints.

Key 2004 Findings

- In 2004 1,048 children died in Arizona.
- Sixty percent (n=624) of them died before reaching their first birthday.
- Thirty percent (n=309) of the 1,031 reviewed deaths among children birth through 17 years were preventable.
- The most common natural cause of death was prematurity, which resulted in 26 percent (n=271) of the reviewed deaths in 2004.
- Twenty percent (n=204) of childhood fatalities in 2004 were the result of an accidental injury.
- Forty children in Arizona died as the result of maltreatment.
- Motor vehicle crashes resulted in 13 percent (n=132) of the child fatalities in 2004.
 - 64 victims of fatal motor vehicle crashes were not properly restrained.
 - Driver inexperience was cited as a contributing factor in the deaths of 61 children.
 - Driving at an excessive rate of speed was a contributing factor in the deaths of 46 children.
- There were 31 drowning deaths of children in 2004.
- The use of drugs or alcohol contributed to ten percent (n=102) of all child deaths in Arizona.

- Fifty-six percent (n=24) of homicide and fifty-five percent (n=22) of maltreatment deaths involved drugs or alcohol.
- Twenty-six percent (n=7) of the suicide and twenty-six percent (n=34) of the motor vehicle crash deaths involved drugs or alcohol.
- Lack of adequate supervision contributed to eight percent (n=79) deaths of children.

Recommendations

- Evidence-based substance abuse prevention programs in schools should be expanded.
- Substance abuse treatment programs designed to meet the unique needs of pregnant and parenting women need to be developed.
- Accessibility of substance abuse treatment programs should be increased throughout Arizona.
- Measures to decrease accessibility to amphetamine precursors, i.e. pseudoephedrine, in retail stores should be strengthened.
- Parents should always provide close, one-on-one, supervision of children around water.
- Physicians should provide guidance regarding the importance of adequate supervision of children, even through adolescence.
- Programs to properly install car seats and educate parents on proper use of safety restraints for children should continue.
- Graduated driver's license laws should be expanded.
- Public education campaigns should be produced demonstrating the costs associated with driving at excessive speeds, including the risk of injury and death and there should be increased enforcement of speed limits.

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Introduction

The Arizona Child Fatality Review Program was created in 1993 (A.R.S. § 36-342, 36-350-4) and began data collection in 1994. A statewide team was mandated by statute to provide oversight of the program, develop the data collection system, and produce an annual report summarizing their findings. The state team also approves the development of each local team that is responsible for reviewing the child deaths in their own community and provides additional support and training for local team members as needed. By statute, the state team includes representatives of the Arizona Chapter of the American Academy of Pediatrics, Indian Health Service, law enforcement, a prosecuting attorney's office, a county health department, a military advocacy program, child protective services, American Indian agencies, and a county medical examiner's office.

The statute also outlines the composition of each local team. These teams must include local representatives from child protective services, the county medical examiner's office, the county health department, law enforcement, and the county prosecuting attorney's office. Other team members include a pediatrician or family physician, a psychiatrist or psychologist, a domestic violence specialist and a parent.

When a child dies in Arizona, a copy of the death certificate is sent to the local child fatality review team. The local team then requests the child's autopsy report, hospital records, child protective services records, law enforcement reports and any other relevant documents that provide insight into the child's death. If the child was under one year of age at the time of the death, the birth certificate is also reviewed. The enabling legislation requires that hospitals and state agencies release this information to the Arizona Child Fatality Review Program's local teams. Team members are required to maintain confidentiality and are prohibited from contacting the child's family.

After reviewing all the documents, the local team makes an assessment of the preventability of each child's death and completes a standardized data sheet that includes extensive information regarding the circumstances surrounding the death. The Arizona Child Fatality Review Program defines a child's death as preventable if an individual or the community could reasonably have done something that would have changed the circumstances that led to the child's death. If the local team members cannot come to a consensus regarding the preventability of a child's death, the preventability is listed as unknown. The local teams review deaths throughout each year and must submit them to the state team by August 15th of the following year. This deadline for completion of reviews is necessary so that the state team can utilize the local team data to prepare an annual report that is published each November. If a team has not received sufficient information to complete a review by the August 15th deadline, the death will not be reviewed.

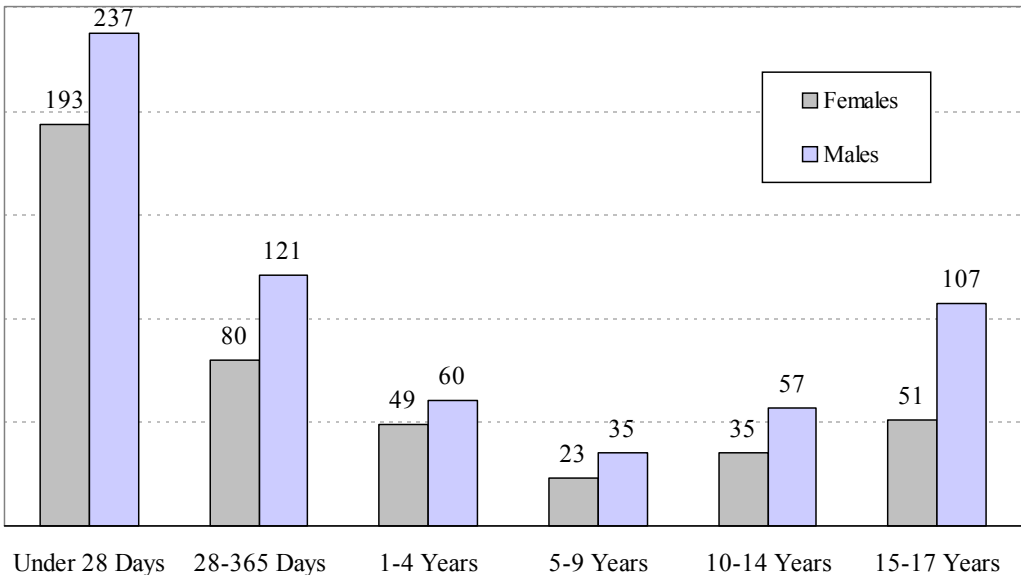
This is the twelfth annual report issued by the Child Fatality Review Team. Local child fatality review teams located throughout Arizona reviewed 1,031 of the 1,048 deaths that occurred in 2004. More than 250 team members contributed over 4,000 hours of volunteer time to review these deaths. The Arizona Department of Health Services and

Arizona State University provides professional and administrative support for the teams.

Characteristics of Children Who Died

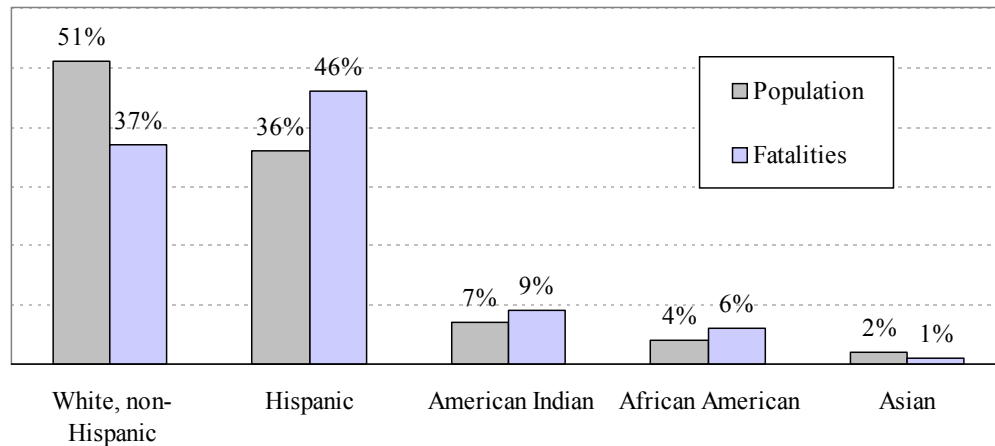
During 2004, there were 1,048 fatalities among children birth through 17 years of age in Arizona. Forty-one percent of these fatalities were in the neonatal period, which is before the 28th day of life. As in previous years, males were disproportionately represented among child deaths with 59 percent of the deaths overall. The increased risk for boys was even more pronounced in the adolescent age group (15 through 17 years) where sixty-eight percent of the children who died were boys. Figure 1 shows the number of boys and girls who died in each age group.

**Figure 1. Age Group and Gender for all Deaths
Children Birth through 17 Years, Arizona, 2004**



Hispanic children are over-represented among childhood fatalities, comprising only 36 percent of the population of children in Arizona and 46 percent of deaths. Figure 2 shows the racial and ethnic composition of the children who reside in Arizona compared to those who died in Arizona during 2004. Other minority populations, including Native-Americans and African-Americans also appear to be overrepresented among the child deaths.

**Figure 2. Race/Ethnicity of Population Birth through 17 Years
Compared to Fatalities, Arizona, 2004**



Sixty percent of Arizona's children live in Maricopa County, and 16 percent live in Pima County. The remaining 24 percent are spread over the 13 other counties. Table 1 shows the distribution of child deaths by county of residence. This table demonstrates that none of the counties has an excess number of childhood deaths compared to the number of children residing in their counties.

**Table 1. Child Deaths by County of Residence
As Reported on Death Certificate, Arizona, 2004**

<u>County</u>	<u>Number of Deaths</u>	<u>Percent of Deaths</u>	<u>Percent of Population</u>
Apache	21	2%	2%
Cochise	22	2%	2%
Coconino	23	2%	2%
Gila	12	1%	1%
Graham	6	1%	1%
Greenlee	1	*	*
La Paz	2	*	*
Maricopa	612	58%	61%
Mohave	31	3%	3%
Navajo	31	3%	2%
Pima	154	15%	15%
Pinal	30	3%	4%
Santa Cruz	12	1%	1%
Yavapai	22	2%	3%
Yuma	27	3%	3%
<u>Outside Arizona</u>	<u>42</u>	<u>4%</u>	—
Total	1048	100%	100%

*Less than 1% of total

Child Fatality Review Findings

Local child fatality review teams review deaths of children that occur in Arizona, regardless of where the child resides. The Child Fatality Review Program reviewed 98 percent of childhood deaths occurring in Arizona in 2004, which is a significant increase over the 89 percent that were reviewed in 2003. Although the Child Fatality Review Program strives to review 100 percent of Arizona's childhood deaths, this is not possible due to a lack of records available on all deaths and the fact that not all deaths are recorded with Vital Records by the review deadline. Last year's report contained an in-depth analysis of reviewed versus not reviewed deaths to provide a more complete picture of childhood fatalities and identify differences between reviewed deaths and deaths not reviewed. Because only 17 deaths were not reviewed in 2004, differences between the reviewed and not reviewed deaths were not analyzed in this report. The remainder of this report contains information only on those 1031 deaths that were reviewed by the local child fatality review teams.

Cause and Manner for all Reviewed Deaths

Cause of death refers to the injury or disease that results in death (e.g. motor vehicle crash, pneumonia). Manner of death explains how the death came about. Manners of death are categorized as natural, homicide, suicide, accident, or undetermined. In addition to reviewing medical examiner reports, child fatality review teams review records from hospitals, emergency departments, law enforcement agencies, Child Protective Services, and other sources. As a result of this comprehensive, multi-disciplinary approach, the team's determination of cause and manner sometimes differs from those recorded on the death certificate.

Natural deaths (e.g. medical conditions, congenital anomalies, prematurity) typically account for the majority of childhood deaths. The most common natural cause of death was prematurity, which resulted in 271 deaths in 2004. There are significant variations of manner by age group. For example, although the manner of death for most infants is natural, accidents account for the majority of deaths in children 10 years of age and older.

One out of every five deaths was due to an accident and 64 percent of accidental deaths were due to motor vehicle crashes. Forty-three children were victims of homicide and 27 children committed suicide. Table 2 shows a cross-tabulation of the cause and manner of death for all reviewed cases.

Table 2. Cause and Manner of Death for Reviewed Cases, Birth through 17 Years, Arizona, 2004

<u>Cause</u>	<u>Accident</u>	<u>Homicide</u>	<u>Natural</u>	<u>Suicide</u>	<u>Undetermined</u>	<u>Total</u>
Medical (excluding SIDS and prematurity)			431		3	434
Prematurity			271			271
MVC	131				1	132
Gunshot wound	4	22		13	2	41
SIDS			31			31
Drowning	29	1			1	31
Other non medical	13	8				21
Suffocation	12	1		1	2	16
Poisoning	11	2		3		16
Undetermined		1			11	12
Hanging				10	1	11
Blunt force trauma		7			2	9
Exposure	4	1			1	6
Total	204	43	733	27	24	1031
Percent of manner	20%	4%	71%	3%	2%	100%

Preventability

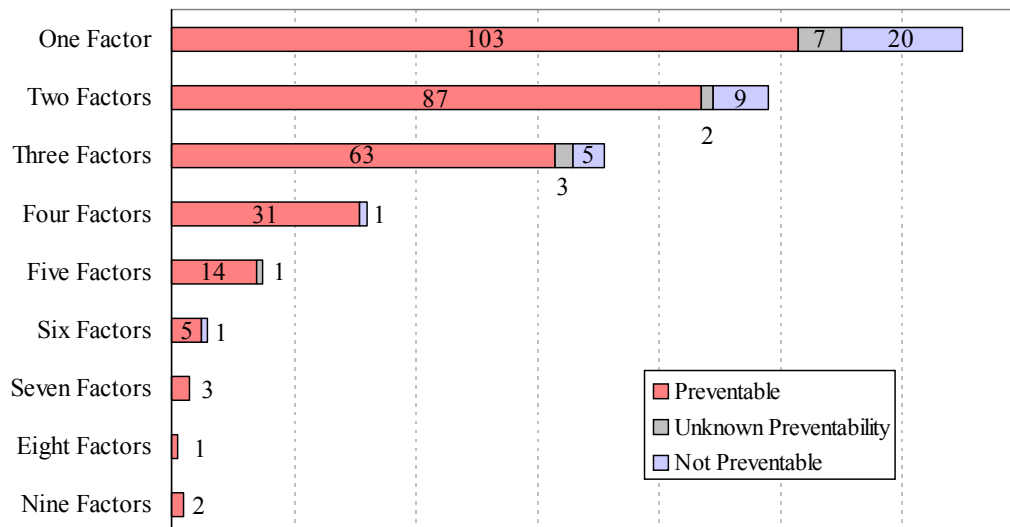
A child's death is considered to be preventable if an individual or the community could reasonably have done something that would have changed the circumstances that led to the child's death. Local child fatality review teams determined that 309 (30 percent) of the child deaths reviewed in 2004 were preventable.

The data review form used by local child fatality review teams was revised for the 2004 data collection year to include a 32-item checklist of preventable factors. The items on this list are not mutually exclusive and more than one factor may be noted for a single death. The checklist includes a wide range of factors including lack of prenatal care, smoking, unsafe bedding, gang involvement, drug and alcohol use, and use of vehicle restraints. (For a complete list of risk factors, please refer to Appendix A.) The Child Fatality Program created the checklist to assist local teams in determining whether or not a death was preventable and to identify the most common factors present in childhood deaths.

Existence of a preventable factor did not necessarily result in the determination that a death was preventable. In some cases, local teams concluded that a death was not preventable even when one or more preventable factors were identified. For example, a team determined that a preventable factor such as the lack of prenatal care in an infant who had congenital heart disease might have contributed to the death. The team concluded that even with adequate prenatal care, the infant probably would not have survived.

Thirty-five percent of all reviewed deaths (n=358) had at least one preventable factor noted. The number of preventable factors identified for each death ranged from zero to nine. Using the preventable factor checklist increased the number of deaths in which preventability could be determined. In 2003, before use of the checklist was initiated, local teams reached conclusions regarding preventability in 88 percent of the cases reviewed whereas in 2004, teams reached a conclusion in 95 percent of the reviewed cases. Figure 3 shows the number of deaths that were determined to be preventable by the number of preventable factors identified by the local teams.

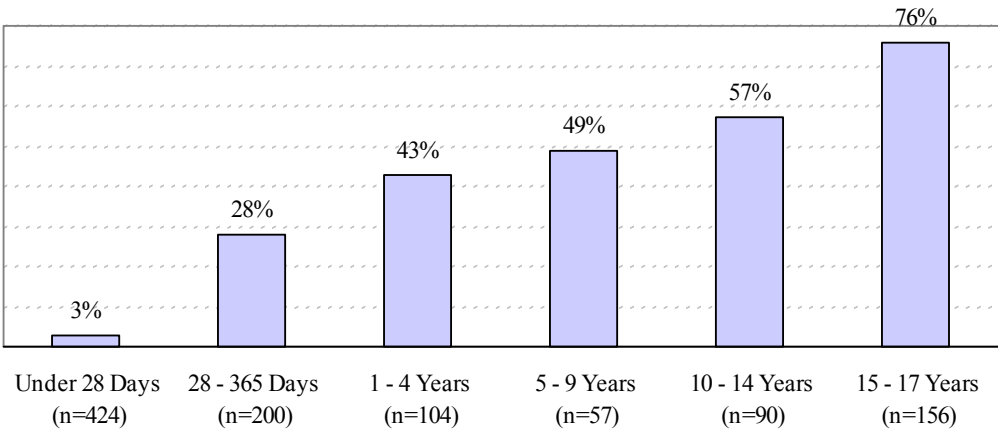
Figure 3. Number of Preventable Factors Among Deaths with at least One Preventable Factor Identified (n=358), Arizona, 2004



Childhood Deaths by Age Group

The number of deaths that were determined to be preventable increased with the child’s age. Figure 4 below shows the percentage of preventable deaths by age group. For the youngest children, only 3 percent of deaths were determined to be preventable compared to 76 percent of deaths occurring in adolescents 15 through 17 years old.

Figure 4. Percent of Fatalities Determined to be Preventable by Age Group, Arizona, 2004



This year’s report focuses on factors identified by the local teams as potentially contributing to childhood deaths. Because preventable factors vary by a child’s developmental stage, the remainder of this report is broken down by age groupings. Each age group section will contain a table on cause of death by manner of death for that age group, a comparison of the racial/ethnic breakdown of children who died compared to the population of children in Arizona, and a presentation of preventable factors identified through the child fatality review process.

The Neonatal Period (Birth through 27 Days)

In 2004, 424 children died in Arizona during the neonatal period, which is the first 27 days of life. Over 98 percent (n=417) of the deaths in the neonatal period were due to natural causes. Over half (58 percent) of the deaths were due to prematurity. Table 3 shows the principle cause and manner of death for children who died before their 28th day of life in Arizona.

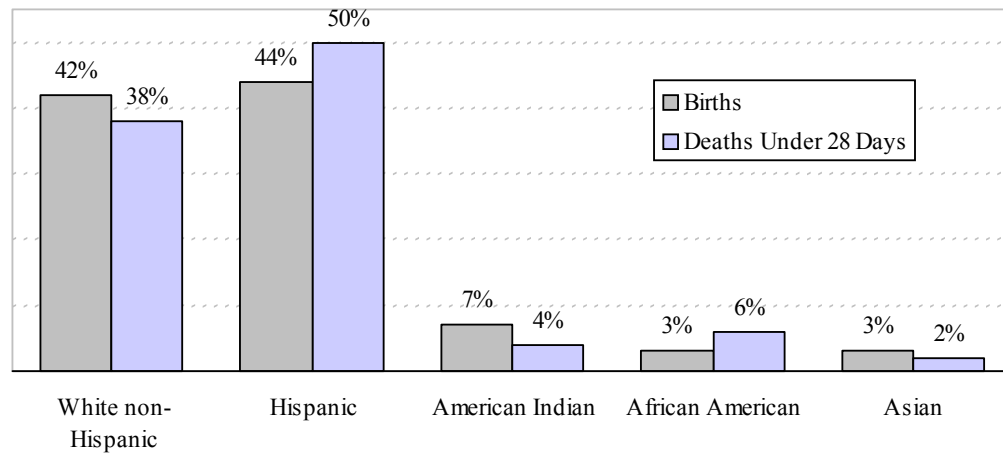
**Table 3. Cause and Manner of Death for Reviewed Cases
Infants Under 28 Days, Arizona, 2004**

Cause	Accident	Homicide	Natural	Suicide	Undetermined	Total
Prematurity			244			244

MVC	1				1
SIDS		5			5
Suffocation	2				2
Other Non Medical		1			1
Medical (excluding SIDS and Prematurity)		169	1		170
Undetermined			1		1
Total	3	1	418	0	424

Figure 5 shows the race and ethnicity of children who died before their 28th day of life in Arizona during 2004 compared to children born in Arizona in the same year. While African American children only accounted for 3 percent of the births, they accounted for twice that percentage of deaths during the neonatal period. Hispanics also appear to be at higher risk of death during this period accounting for 44 percent of the births but 50 percent of the deaths.

Figure 5. Race/Ethnicity - Deaths during the Neonatal Period Compared to Births, Arizona, 2004

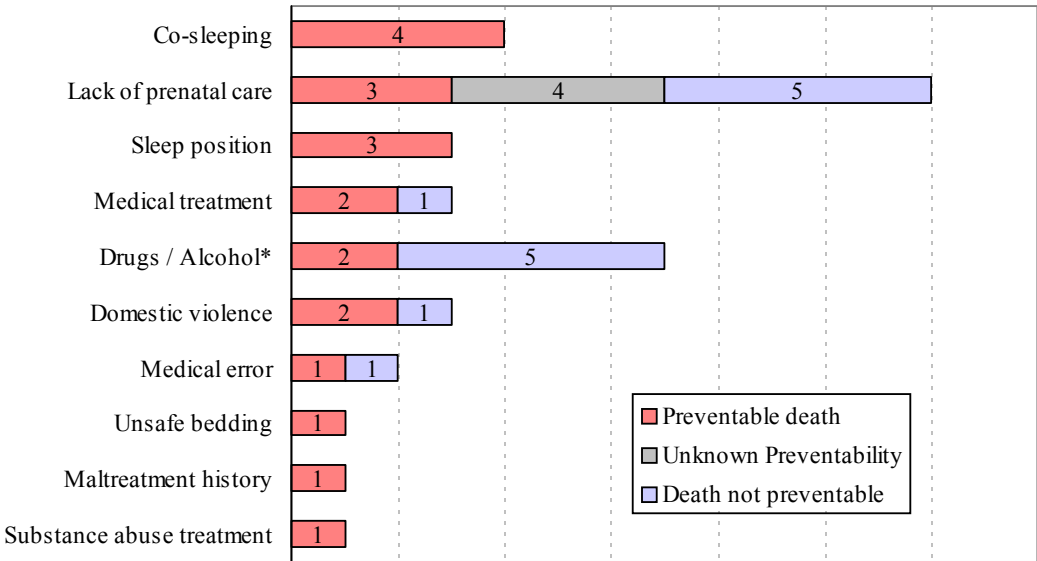


Preventable Factors during the Neonatal Period

The neonatal period was the age group with the fewest number of preventable factors and smallest proportion of preventable deaths identified by the review teams. Twenty-eight of the children who died before their 28th day of life (6.6 percent) had at least one preventable factor identified by the teams and 11 deaths of children under 28 days (2.6 percent) were determined to be preventable. The most commonly noted preventable factor was lack of prenatal care (n=12, or 2.8 percent) followed by drug and alcohol use (including prenatal substance abuse) (n=7), and co-sleeping (n=4). Figure 6 shows preventable factors identified in neonatal deaths ordered from the most to the least commonly identified factor in preventable deaths. Although lack of prenatal care was the

most frequently identified preventable factor overall, co-sleeping was the most frequently identified factor in preventable deaths in this age group. For the purposes of this report, co-sleeping is defined as sharing a bed during sleep.

**Figure 6. Preventable Factors Identified
for Neonatal Deaths (n=424), Arizona, 2004**



*Includes prenatal substance abuse.

For three out of the four deaths in which co-sleeping was identified as a preventable factor, sleep position was also noted as potentially contributing to the death. In one of the deaths, co-sleeping, sleep position, and unsafe bedding were all present. Two of these four deaths were classified as Sudden Infant Death Syndrome (SIDS) and the other two as suffocation deaths.

Post Neonatal Period (28 through 365 Days)

Two hundred children died in Arizona in 2004 between their 28th day of life and their first birthday. The majority died of natural causes and 26 (13 percent) died of sudden infant death syndrome. Nine percent (n=17) died of accidental deaths with suffocation (n=8) being the most common cause. Six children were victims of homicide.

**Table 4. Cause and Manner of Death for Reviewed Cases
Children 28 to 365 Days (n=200), Arizona, 2004**

<u>Cause</u>	<u>Accident</u>	<u>Homicide</u>	<u>Natural</u>	<u>Suicide</u>	<u>Undetermined</u>	<u>Total</u>
--------------	-----------------	-----------------	----------------	----------------	---------------------	--------------

Medical (excluding SIDS and Prematurity)			113	1	114
Prematurity			25		25
MVC	2				2
SIDS			26		26
Drowning	1				1
Suffocation	8			2	10
Blunt force trauma		3			3
Exposure	2			1	3
Poisoning	1	1			2
Other non-medical	3	2			5
Undetermined				9	9
Total	17	6	164	13	200

With the exception of 1995, there have been between 60 and 80 unexpected infant deaths every year for the last decade in Arizona. Figure 7 shows that, while the number of unexpected infant deaths identified as SIDS has declined from a high of 78 in 1998 to a low of 31 in 2004, the number of unexpected deaths due to undetermined or other causes has increased from a low of 21 in 1996 to a high of 39 in 2004. Unexpected infant deaths included in the “other” category in Figure 7 are infant deaths due to suffocation, unexpected natural deaths, and deaths due to undetermined causes.

Figure 7. Unexpected Infant Deaths, Arizona, 1995 - 2004

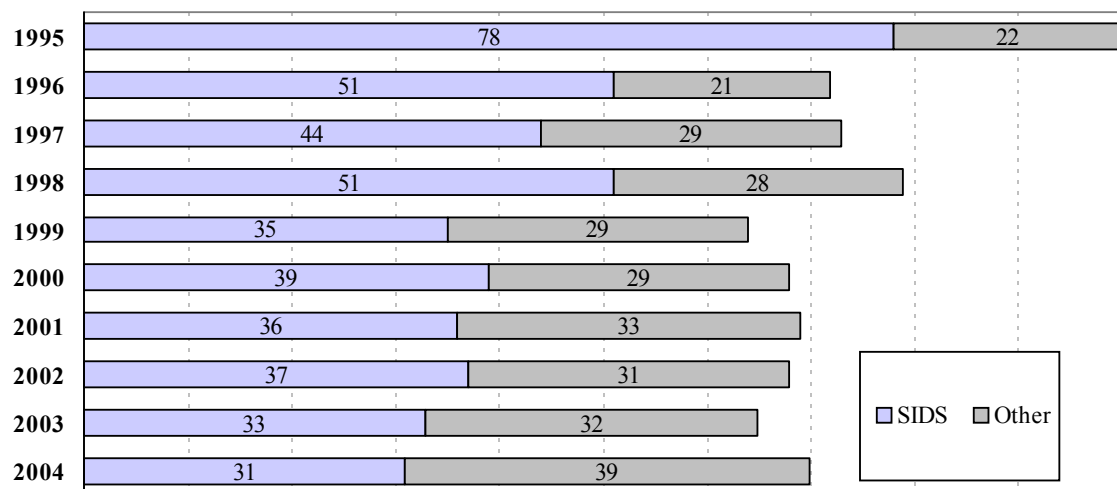
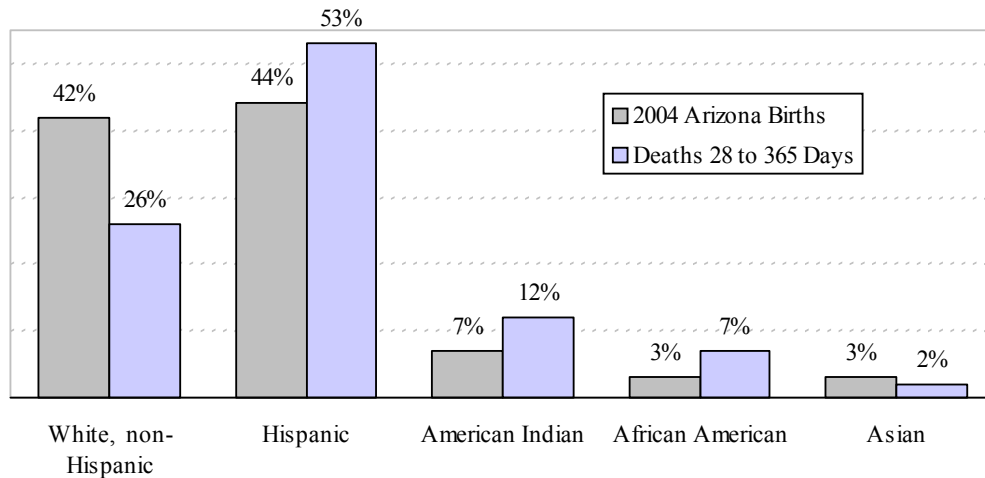


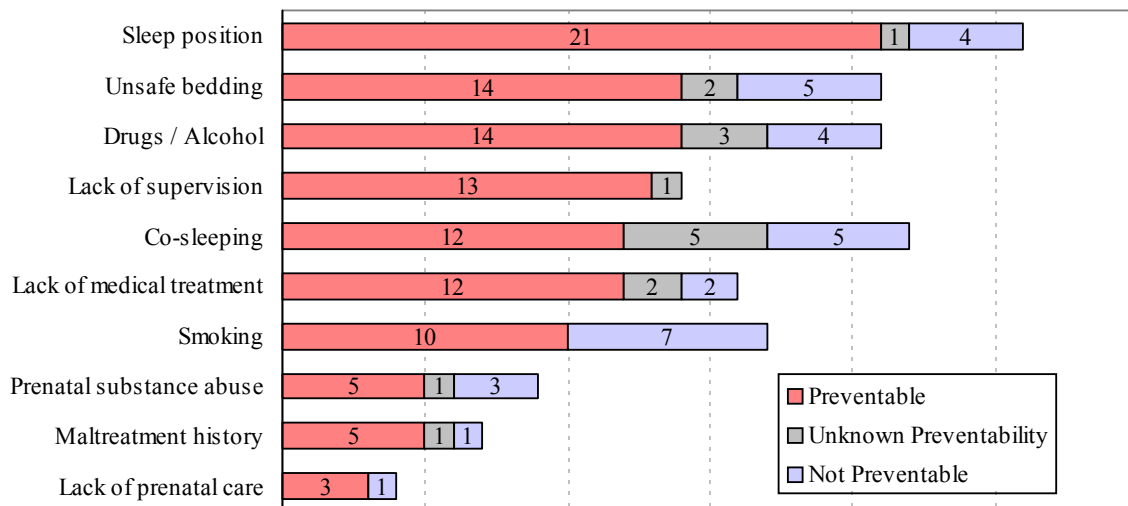
Figure 8 shows a comparison of the racial/ethnic composition of infants who died during the post-neonatal period and those who were born during 2004. A higher proportion of Hispanic, American Indian, and African American infants died than were born.

Figure 8. Race/Ethnicity - Infants 28 to 365 Days who Died Compared to Births, Arizona, 2004



Although only 56 deaths (28 percent) were determined to be preventable, 80 deaths (40 percent) had at least one preventable factor identified. Sleep position was the most frequently identified risk factor in this age group (n=26, 13 percent of all deaths) and was also the risk factor identified with the largest number of preventable deaths (n=21). Figure 9 below shows the risk factors identified by the review teams. The risk factor associated with the largest number of preventable of deaths appears at the top of the list.

Figure 9. Preventable Factors Identified for Infants 28-365 Days (n=200), Arizona 2004



Children One through Four Years Old

During 2004, 104 children died in Arizona between their first and fifth birthdays. Over half of these deaths (n=59, 57 percent) were due to natural causes. Thirty-three children died in accidents, 17 of which were drowning and 13 of which were motor vehicle

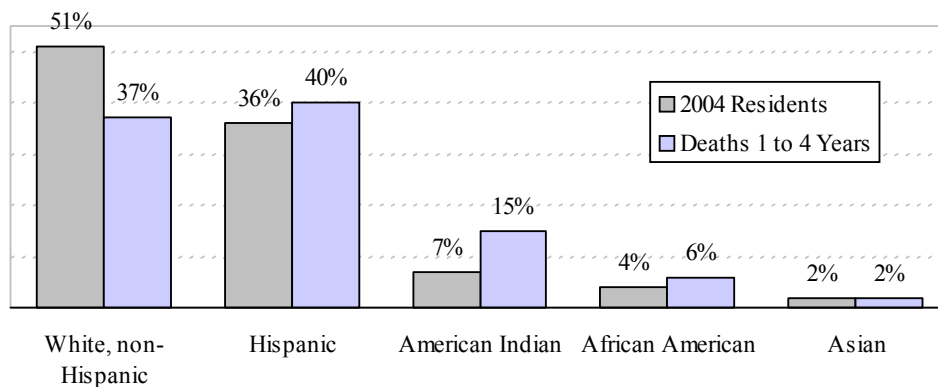
crashes. Nine children were victims of homicide. Table 5 below provides detailed information on cause and manner of death for these children.

**Table 5. Cause and Manner of Death for Reviewed Cases
Children 1 through 4 Years Old, Arizona, 2004**

<u>Cause</u>	<u>Accident</u>	<u>Homicide</u>	<u>Natural</u>	<u>Suicide</u>	<u>Undetermined</u>	<u>Total</u>
Medical			58		1	59
Drowning	17	1				18
MVC	13					13
Blunt force trauma		3			2	5
Other non-medical	3	1				4
Undetermined		1			1	2
Exposure		1				1
Suffocation		1				1
Gunshot wound		1				1
Total	33	9	58		4	104

Figure 10 below shows the racial/ethnic composition of children ages one through four years who died in Arizona compared to the racial/ethnic composition of children who are Arizona residents. Hispanic, American Indian, and African American children appear to be at higher risk in this age group.

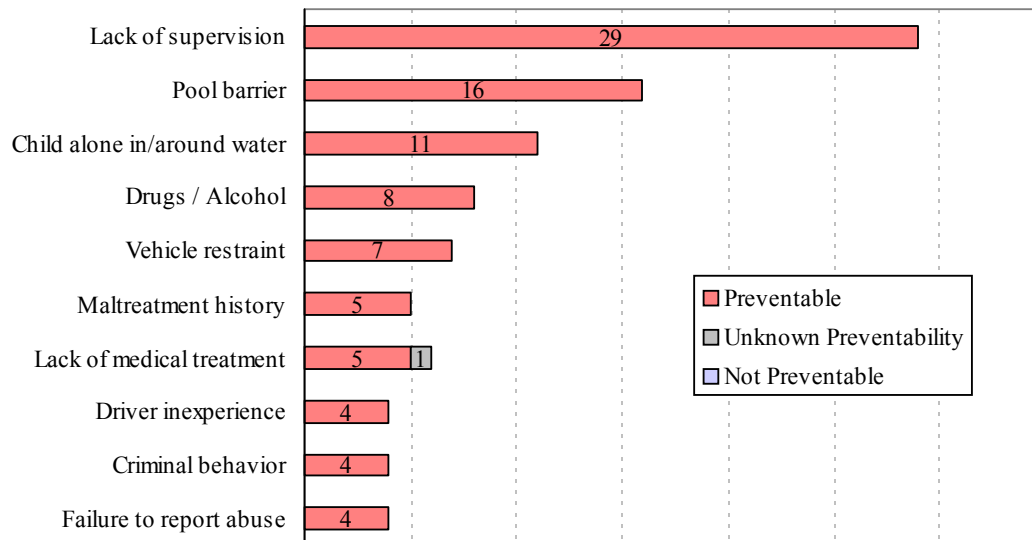
Figure 10. Race/Ethnicity -Children Ages 1 through 4 Years Who Died Compared to Resident Children, Arizona, 2004



Nearly all of the deaths that were identified as having a preventable factor were determined to be preventable. Forty-five deaths (43 percent) were determined to be preventable and 46 deaths were identified as having at least one preventable factor. The preventable factor most frequently noted was supervision. A lack of supervision was

identified as an issue in 29 (28 percent) of the deaths. Lack of pool barriers and allowing a child to be alone in or near water were the next most frequently identified preventable factors. Figure 11 below shows the 10 most frequently noted preventable factors for children ages one through four years.

**Figure 11. Preventable Factors Identified
for Children 1 through 4 Years (n=104), Arizona, 2004**



Children Five through Nine Years Old

During 2004, 57 children in Arizona died between their fifth and tenth birthdays. Just under half (n=27, 49 percent) of these deaths were due to natural causes. One in four (n=15, 26 percent) died in motor vehicle crashes and nine percent (n=5) drowned. Table 6 shows the cause and manner for each of the deaths in this age group.

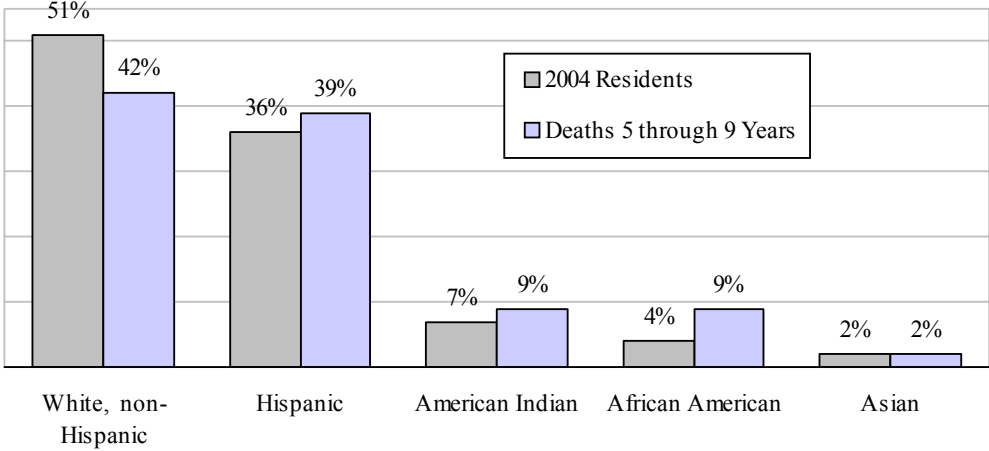
**Table 6. Cause and Manner of Death for Reviewed Cases
Children 5 through 9 Years Old, Arizona, 2004**

<u>Cause</u>	<u>Accident</u>	<u>Homicide</u>	<u>Natural</u>	<u>Suicide</u>	<u>Undetermined</u>	<u>Total</u>
Medical (excluding Prematurity)			27			27
MVC	15					15
Drowning	5					5
Other non-medical	2	1				3
Gunshot wound	1				1	2
Blunt force trauma		1				1
Fall	1					1

Hanging				1		1
Poisoning		1				1
Prematurity				1		1
Total	24	3	28	1	1	57

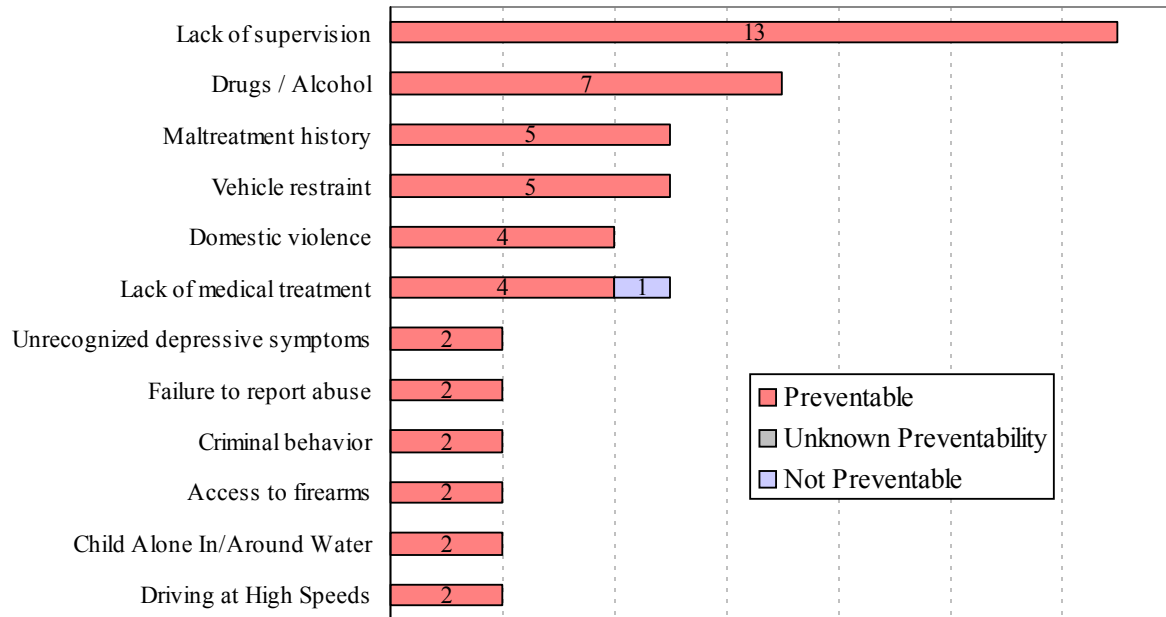
Figure 12 provides a racial and ethnic comparison of children five through nine years old who died in Arizona compared to the population of children residing in Arizona. African American, Native American, and Hispanic children appear to be at elevated risk for dying in this age group.

Figure 12. Race/Ethnicity -Children Ages 5 through 9 Years who Died Compared to Resident Children, Arizona, 2004



Local fatality teams determined that 49 percent (n=28) of the deaths among five through nine year olds were preventable and 29 deaths had at least one preventable factor identified. Figure 13 shows that, the most frequently identified preventable factor for preventable deaths was supervision (n=13, 23 percent) followed by drugs or alcohol use (n=7, 12 percent).

**Figure 13. Preventable Factors Identified
for Children 5 through 9 Years (n=57), Arizona, 2004**



Children 10 through 14 Years Old

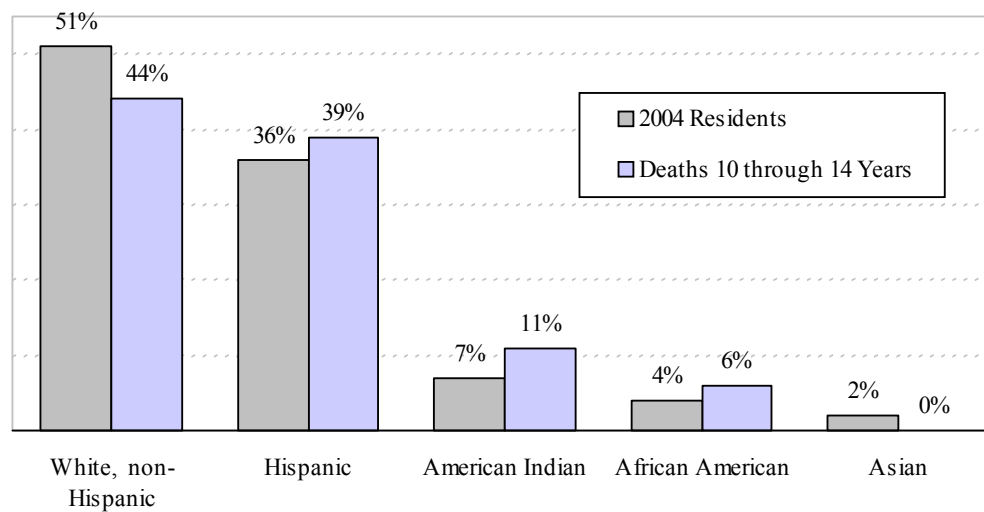
During 2004, ninety children died in Arizona between their tenth and fifteenth birthdays. Medical causes accounted for 40 percent (n=36) of the deaths and motor vehicle accidents account for 39 percent (n=35). For 10 through 14 year olds, accidents accounted for 48 percent of deaths and natural deaths accounted for 40 percent. Seven children were victims of homicide and two children committed suicide. Table 7 below provides details for cause and manner of death for each of the deaths that occurred in the 10 through 14-year age group.

**Table 7. Cause and Manner of Death for Reviewed Cases
Children 10 through 14 Years, Arizona, 2004**

<u>Cause</u>	<u>Accident</u>	<u>Homicide</u>	<u>Natural</u>	<u>Suicide</u>	<u>Undetermined</u>	<u>Total</u>
Medical			36			36
MVC	35					35
Gunshot wound	1	7		1		9
Drowning	2					2
Hanging				1	1	2
Poisoning	2					2
Suffocation	2					2
Other non-medical	1					1
Prematurity			1			1
Total	43	7	37	2	1	90

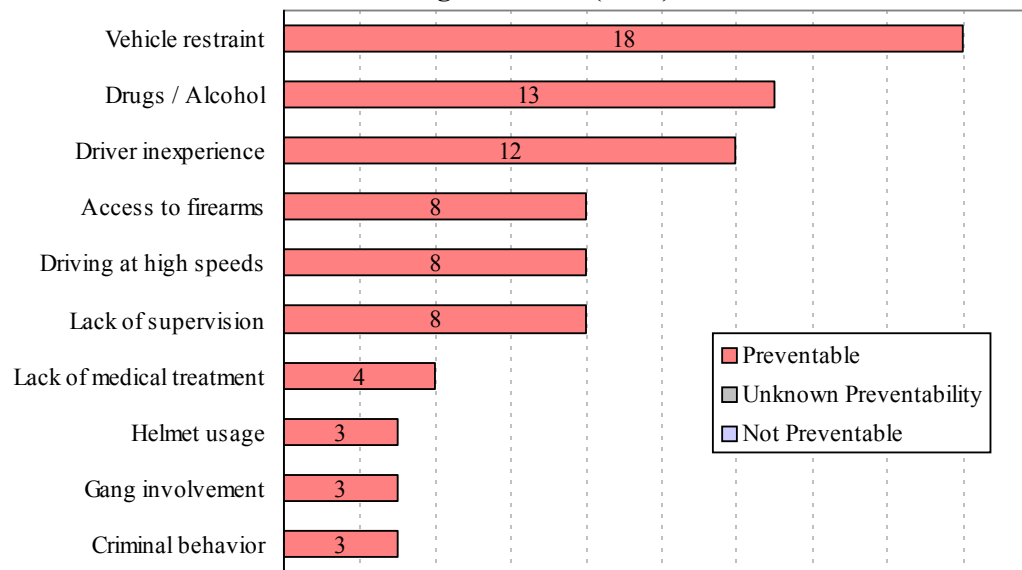
As seen in other age groups, American Indian, Hispanic, and African American children are over-represented among deaths. Figure 14 provides a comparison of the racial/ethnic makeup of children ages 10 through 14 years who died compared to the population of children residing in Arizona.

Figure 14. Race/Ethnicity -Children Ages 10 through 14 Years Who Died Compared to Resident Children, Arizona, 2004



The local fatality review teams determined that 57 percent of the deaths (n=51) of children ages 10 through 14 years were preventable and 58 percent (n=52) had at least one preventable risk factor identified. Lack of use of appropriate vehicle restraints was the number one risk factor identified for children who died of preventable deaths (n=18, 20 percent). Figure 15 shows that drug and alcohol use, driver experience, and access to firearms, driving at a high speed, and lack of supervision were also identified as preventable factors in many of these deaths.

**Figure 15. Preventable Factors Identified
for Children 10 through 14 Years (n=90), Arizona, 2004**



Adolescents 15 through 17 Years

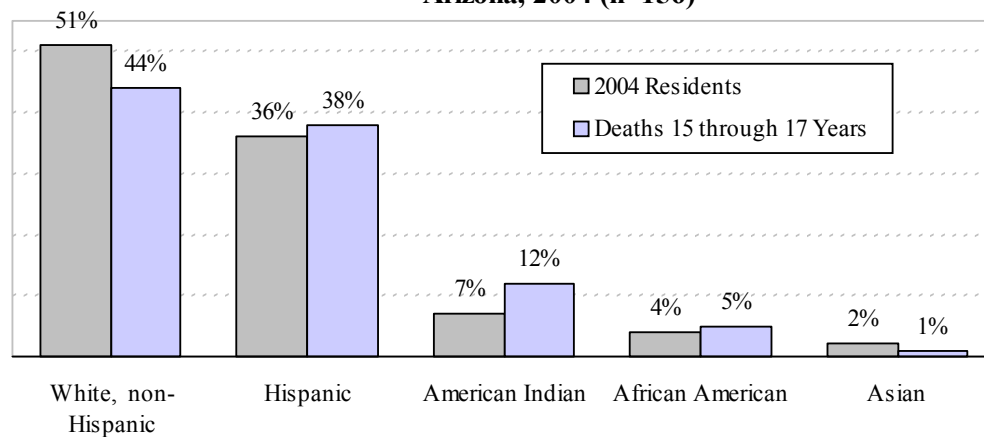
Of the 156 deaths occurring to adolescents (15 through 17 years) in 2004, 54 percent (n=84) were accidents and 18 percent (n=28) were from natural cause. Twenty-four adolescents committed suicide and 17 were victims of homicide. Table 8 shows the cause and manner of death for each of these deaths.

**Table 8. Cause and Manner of Death for Reviewed Cases
Children 15 through 17 Years, Arizona, 2004**

<u>Cause</u>	<u>Accident</u>	<u>Homicide</u>	<u>Natural</u>	<u>Suicide</u>	<u>Undetermined</u>	<u>Total</u>
MVC	65				1	66
Gunshot wound	2	14		12	1	29
Medical			27			27
Poisoning	8			3		11
Hanging				8		8
Drowning	4				1	5
Other non- medical	1	3	1			5
Exposure	2					2
Fall	2					2
Suffocation				1		1
Total	84	17	28	24	3	156

Figure 16 shows the racial and ethnic distribution of 15 through 17 year olds who died in Arizona during 2004 compared to Arizona residents in this age range. This figure shows that American Indian adolescents are disproportionately at risk for dying than adolescents from other racial and ethnic groups.

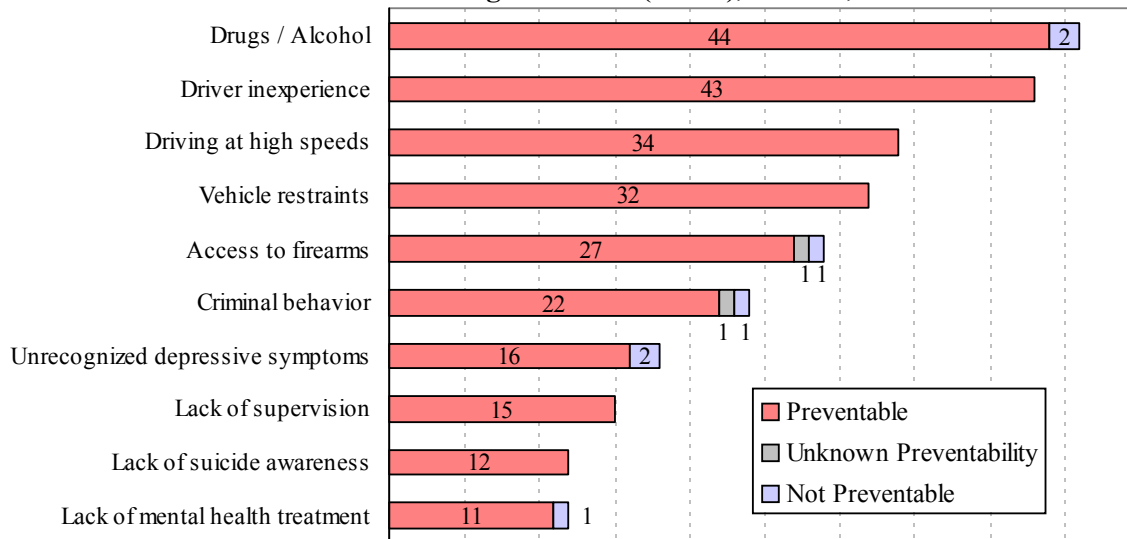
Figure 16. Race/Ethnicity - Children Ages 15 through 17 Years who Died Compared to Resident Children, Arizona, 2004 (n=156)



Of the 156 deaths among adolescents, 76 percent (n=118) were determined to be

preventable and 79 percent (n=123) had at least one preventable factor identified. Fifteen of the adolescents had five or more preventable factors identified. Drug or alcohol use was identified as a risk factor in more than a quarter of the deaths (n=44, 28 percent). Driver inexperience (n=43, 28 percent) was also involved in more than one in four deaths. Figure 17 shows that driving at high speeds and lack of appropriate vehicle restraints were also important risk factors.

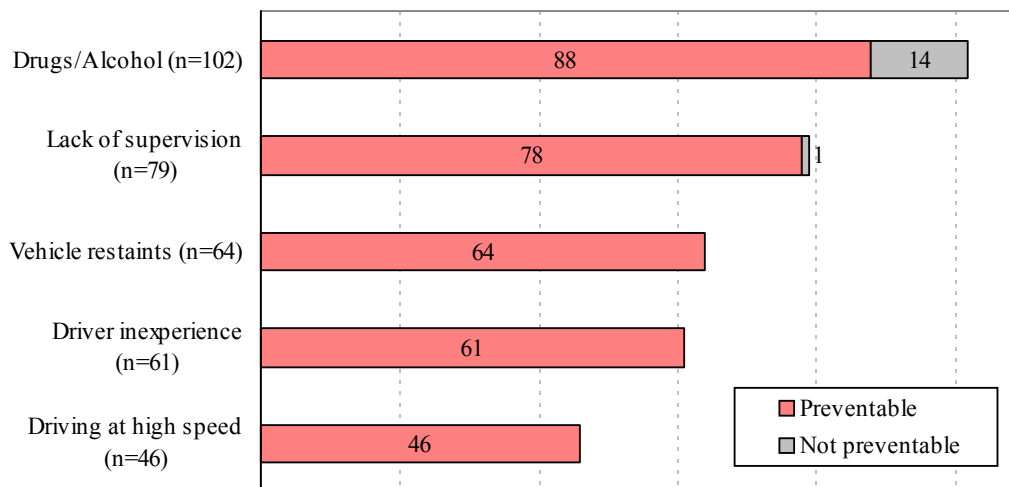
Figure 17. Preventable Factors Identified for Adolescents 15 through 17 Years (n=156), Arizona, 2004



Preventable Factors Across Age Groups

Of the 32 items on the preventable factor checklist, the five most frequently identified factors were drug and alcohol use, lack of supervision, vehicle restraints, and driver inexperience. Figure 18 shows the frequency with which these factors were identified by preventability determination for all 2004 childhood deaths reviewed.

Figure 18. Most Frequently Identified Risk Factors and Preventability (n=1031), Arizona, 2004

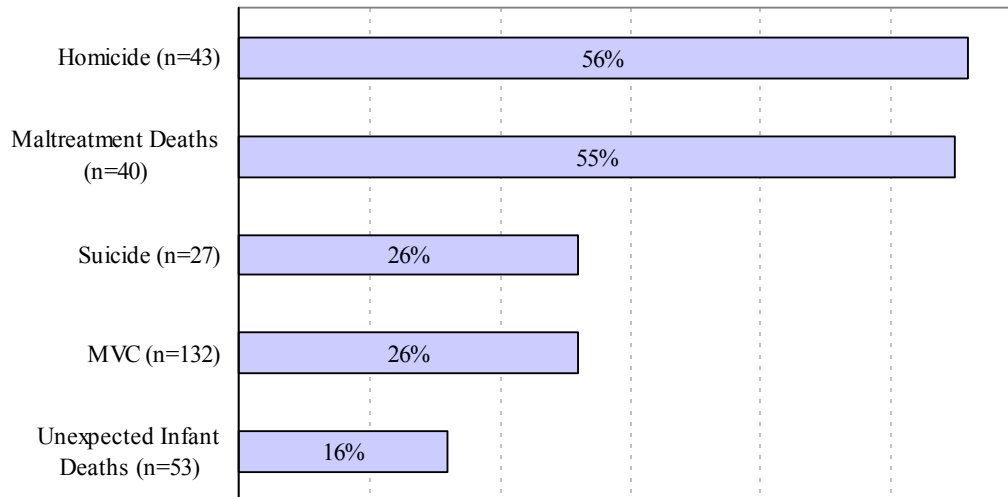


Drugs and Alcohol

When drugs or alcohol are determined to be a factor in the death of a child, the person ingesting the drugs or alcohol could have been the child, a parent, another caretaker, an acquaintance, or even a stranger. For example, an intoxicated driver unknown to the child could have caused a motor vehicle crash killing the child.

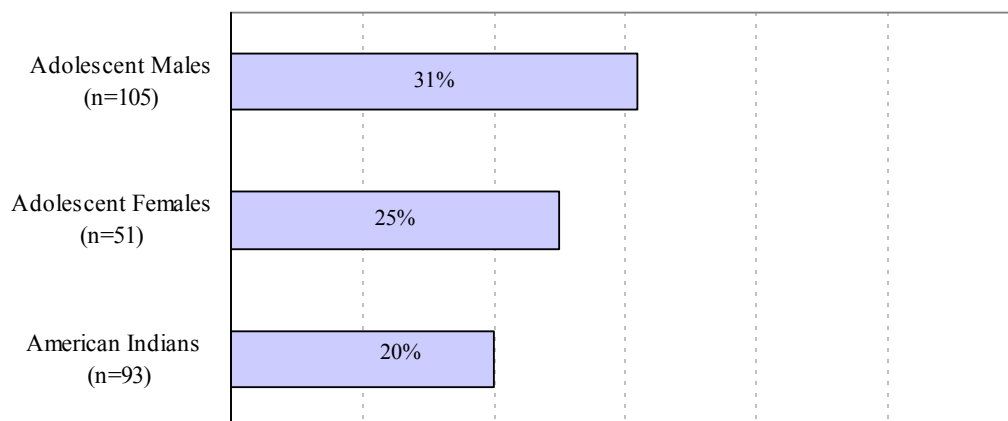
Drug or alcohol use was identified as a preventable factor in 10 percent (n=102) of all deaths, 88 percent of which were determined to be preventable. Figure 19 shows characteristics of deaths where drug and alcohol use were identified in more than 10 percent of the cases. The majority of homicide and maltreatment deaths involved drugs or alcohol and one fourth of the suicide and motor vehicle crash deaths also involved drugs or alcohol.

Figure 19. Characteristics of Death associated with Elevated Drug/Alcohol Risk, Arizona, 2004



Certain demographic characteristics were also associated with higher risk levels for drug or alcohol involvement in childhood deaths. For example, 31 percent of the adolescent male deaths and 25 percent of the adolescent female deaths were associated with drug and alcohol use as a preventable risk factor and 20 percent of American Indian deaths were associated with drug and alcohol use. Figure 20 shows the percentage of deaths in these groups.

Figure 20. Demographic Factors associated with Elevated Drug/Alcohol Risk, Arizona, 2004



Alcohol was identified in 50 deaths, amphetamines (including methamphetamine) in 21, marijuana in 20, cocaine in six, and methadone in two childhood deaths. Oxycodone, ecstasy, butane, barbiturates, and soma were each identified in one death.

Maltreatment Deaths

In 2004, there were 40 deaths that were associated with maltreatment compared to 37 in 2003, and 36 in 2002. In order to get a fuller picture of the contribution of neglect and abuse to child mortality, the Arizona Child Fatality Review Team is asked to answer the following question regarding each death: "Was this death the result of child maltreatment?"

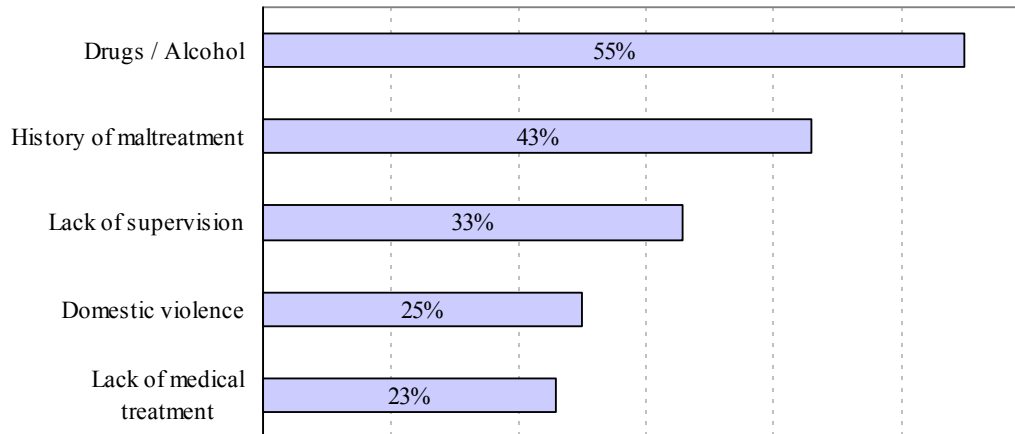
A "yes" answer to this question indicates that all of the following three conditions are met:

- 1) The U. S. Department of Health and Human Services definition of maltreatment: "An act or failure to act by a parent, caregiver, or other person as defined under State law which results in physical abuse, neglect, medical neglect, sexual abuse, emotional abuse, or an act or failure to act which presents an imminent risk of serious harm to a child" applies to the circumstances surrounding the death.
- 2) The relationship of the individual accused of committing the maltreatment to the child must be the child's parent, guardian or caretaker.
- 3) A team member who is a mandated reporter would be obligated to report a similar incident to Child Protective Services.

Deaths included in this category are also reported in other categories such as homicide, accident, suicide or natural (medical) as appropriate. For example, a death due to shaken baby syndrome would be classified as both a homicide and a maltreatment death. An accidental death might also be included in this category if, in the opinion of the team, a caretaker's negligence was the cause of the accidental death.

Drug or alcohol use was noted to be a factor in 55 percent of the maltreatment deaths occurring during 2004. Methamphetamine was identified as a preventable factor in one out of every five maltreatment deaths. In 43 percent of these deaths, there was a history of maltreatment. Prior family involvement with Child Protective Services was identified in 18 of the maltreatment deaths and eight of these cases were open at the time of the child's death. Figure 21 below shows the five most frequently identified preventable factors for maltreatment deaths.

**Figure 21. Preventable Factors Identified for Maltreatment Deaths
(n=40), Arizona, 2004**



Three out of four children who died as a result of maltreatment were under the age of five. Sixteen of the maltreatment deaths in children less than five years of age were homicides; seven were due to natural causes; and two died in accidents. A death due to natural causes might be considered to be maltreatment if the parent failed to obtain medical care for a sick child who subsequently died. A motor vehicle crash death might be considered the result of maltreatment if the parent was intoxicated while driving with the child in the car. Table 9 provides details on the cause and manner of death for these 30 children.

Table 9. Cause and Manner of Death for Maltreatment Deaths in Children less than Five Years of Age (n=30) Arizona, 2004

<u>Cause</u>	<u>Accident</u>	<u>Homicide</u>	<u>Natural</u>	<u>Undetermined</u>	<u>Total</u>
Medical (excluding SIDS and Prematurity)			7		7
Blunt force trauma		6			6
Exposure	1	1		1	3
Shaken infant		3			3
Suffocation		1		1	2
Other	1	4			5
Undetermined		1		3	4
Total	2	16	7	5	30

Recommendations to Reduce Childhood Deaths

This year's recommendations are focused on reduction of the five most frequently identified factors associated with preventable deaths.

The factor most frequently identified was drug and alcohol use. Substance abuse cuts across age, class, gender, ethnic and racial lines. Strategies need to be targeted to various age groups as appropriate and be culturally sensitive. Additionally, strategies should be aimed at both prevention and treatment.

According to the Youth Risk Behavior Survey, 79 percent of ninth through twelfth grade students in Arizona have tried alcohol and 48 percent have tried marijuana. In addition, 36 percent of these students had been in a vehicle with an intoxicated driver in the month before the survey and 15 percent reported driving a vehicle after they had been drinking. Strategies for youth should include prevention, treatment, education and enforcement of existing laws.

Lack of appropriate and accessible treatment has been identified as an issue for women who are pregnant or parenting.

The Child Fatality Review Team recommends:

- Expansion of evidence-based substance abuse prevention programs in schools,
- Development of treatment programs designed to meet the unique needs of pregnant and parenting women,
- Increased accessibility of substance abuse treatment programs throughout Arizona, and
- Strengthening measures to decrease accessibility to amphetamine precursors, i.e. pseudoephedrine, in retail stores.

Lack of adequate supervision was the second most frequently identified factor associated with preventable childhood deaths. Although one through four year olds were most affected by the lack of supervision (28 percent), lack of supervision was also identified as a factor in 10 percent of deaths in 15 through 17 year olds. Most of the deaths that were related to the lack of supervision in one through four year olds were due to drowning. Parental supervision is critical throughout childhood as a strategy to prevent both accidental and intentional deaths.

The Child Fatality Review Team recommends:

- Close, one-on-one, supervision of children around water, and
- Physician guidance regarding the importance of adequate supervision of children, even through adolescence. Parents may need education on modification of supervision with older children.

Lack of appropriate use of vehicle restraints was the third most frequently identified factor of preventable childhood deaths. Adolescents, ages 15 through 17 years old, accounted for half of these deaths. According to the Youth Risk Behavior Survey, 14 percent of ninth through twelfth grade students never or rarely wore a seat belt while riding in a car driven by someone else. Although there has been a dramatic decrease in motor vehicle crash-related deaths of children under the age of five years, lack of vehicle restraints was identified as a preventable factor in seven deaths of children ages one through four years.

The Child Fatality Review Team recommends:

- Passage of primary seat belt legislation,
- Implementation of programs designed to increase seat belt usage among high school aged students, and
- Continued programs to properly install car seats and educate parents on proper use of safety restraints for children.

Driver inexperience and driving at a high speed were the fourth and fifth leading factors associated with childhood fatalities in Arizona.

The Child Fatality Review Team recommends:

- Enhancement of graduated driver's license laws, including increased supervised practice, limits on the number of passengers with a teen driver, and nighttime driving restrictions;
- Public education on the costs associated with driving at excessive speeds, including the risk of injury and death; and
- Increased enforcement of speed limits.

Looking Forward

The Child Fatality Review Program strives to understand factors involved in childhood deaths and identify opportunities to reduce harm to children. This process relies on data collected by local review teams. The form used by local teams to collect data has recently been transformed in an attempt to obtain more accurate and thorough information. While this transformation has led to improved data quality, the program recognizes there is always room for improvement. Certain risk factors, particularly pertaining to infancy are not currently collected. In the coming year, the Child Fatality Review Program will consider enhancing the form currently used to include risk factors and will explore adopting the National Center for Child Death Review form.

Appendix A: Risk Factor Checklist

Check all that contributed to death

- ☐ Access to guns/weapons
- ☐ Barriers to pool, lack of adequate
- ☐ Child alone in/around water
- ☐ Co-sleeping
- ☐ Criminal behavior
- ☐ Curfew violation
- ☐ Domestic violence
- ☐ Driver fatigue
- ☐ Driving at excessive speed
- ☐ Drug or alcohol use
- ☐ Exposure to smoking
- ☐ Failure to recognize depressive symptoms
- ☐ Failure to report abuse
- ☐ Gang involvement
- ☐ Helmet usage, lack of
- ☐ Illegal border crossing
- ☐ Immunization, lack of
- ☐ Inexperienced driver
- ☐ Infant sleep position
- ☐ Maltreatment history
- ☐ Medical error
- ☐ Medical treatment, lack of
- ☐ Mental health treatment, lack of
- ☐ Passenger in back of truck
- ☐ Prenatal care, lack of
- ☐ Prenatal substance abuse
- ☐ Public awareness of suicide, lack of
- ☐ Smoke alarms, lack of working
- ☐ Substance abuse treatment, lack of
- ☐ Supervision problem
- ☐ Unsafe bedding
- ☐ Vehicle restraints not used or improper use

Appendix B: Arizona Child Fatality Review Teams

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Mohave County Team

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Apache County Team

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Cochise County Team

Hal Thomas
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Veronica Harris
Gila/Pinal County Teams.

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Pima County Child Fatality Review Team Continued

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